

关于兰科若干亚族的分类问题*

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Notes on some subtribes of the Orchidaceae

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Abstract Some subtribes of the Orchidaceae are discussed; five are described as new; Subtrib. Yoaniinae, Sterosandrinae, Risleyinae, Acanthephippiinae and Anthogoniinae.

Key words Orchidaceae; Subtrib. Yoaniinae; Subtrib. Sterosandrinae; Subtrib. Risleyinae; Subtrib. Acanthephippiinae; Subtrib. Anthogoniinae

In dealing with the Orchidaceae for the "Flora Reipublicae Popularis Sinicae" (FRPS), one of the problems that face us is how to systematically arrange the over 170 genera of Chinese Orchidaceae to reflect the current understanding of the family. In the newly published book, "The Orchids of China" (Chen & Tsi, 1998), the senior author adopted the arrangements of the subfamilies by Seidenfaden & Wood (1992) and of the tribes and subtribes by Dressler (1993). For the FRPS, however, it is difficult to use these schemes to produce a key to the subfamilies, tribes and subtribes. This is largely due to the fact that some of the tribes and subtribes treated are polytypical or not clearly defined.

For example, in the subtribe Calypsoinae, which was treated as comprising nine genera (Dressler, 1993), there are two distinct pollinarium and column types represented by *Yoania* and *Calypso* respectively. In Bletiinae, another subtribe of 21 genera (Dressler, 1993), some members, such as *Acanthephippium* and *Anthogonium*, show great differences in floral structures from the others. It is generally accepted that the floral, column and pollinarium structures are of great importance in orchid classification and are often used for constructing keys. It appears to be unacceptable to include *Yoania* in the same subtribe with *Calypso*, and to include *Acanthephippium* and *Anthogonium* in the same subtribe with *Bletia*, *Calanthe* and *Mischobulbum*.

In our treatment for the FRPS, a few subtribes, such as Vanillinae and Galeolinae, will be merged into each other. These two subtribes are composed of nine genera in total (Dressler, 1993), four of which are found in China. Although the two subtribes were recent-

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ly recognized by Seidenfaden & Wood (1992) and Dressler (1993), the demarcation line between them was treated differently due to their close relationships and overlapping characters. Seidenfaden & Wood (1992) considered *Cyrtosia* as a member of the subtribe Vanillinae based on its fleshy and indehiscent fruit, while Dressler (1993), perhaps thinking more highly of its saprophytic habit and lacking hairy appendages on lip, placed it in the subtribe Galeolinae. In Galeolinae, however, the genus *Pseudovanilla* shows leaflike bracts that may have some green colouring, as noted by Dressler (1993), and *Galeola* and *Erythrorchis* usually have long-climbing stems, as found in *Vanilla*. The appendages on the lip of *Vanilla* are varied within the genus, and seem to be of little importance in subtribal classification. Apparently, the genera of the two subtribes are closely related to each other by their seed structure with the outer testa wall thickened. It appears to be unnecessary to treat them as two subtribes as done by Seidenfaden & Wood (1992) and Dressler (1993).

For the FRPS, we intend to focus on the treatment of subtribes. As subtribes represent more natural units than the present classification of subfamilies and tribes. This will provide a clear statement of alignment for a later reclassification at the tribal or higher level. A total of 41 subtribes are to be recognized in FRPS, of which five are described here as new.

1 Subtribe Yoaniinae S. C. Chen, Z. H. Tsi et G. Zhu, subtrib. nov. (Subfam. Orchidoideae, Trib. Epidendreae, sensu lato)

Herba saprophytica; rhizoma carnosulum, ramosum; caulis carnosus; inflorescentia terminalis, pauciflora; flores resupinati; sepala et petala libera; labellum obtuso-calcaratum prope medium; columna brevis, lata, pede brevi; pollinia quatuor, mollia, sectilia, viscidio communi.

Herb saprophytic; rhizome fleshy, branched; stem erect, fleshy; inflorescence terminal, several-flowered; flowers resupinate; sepals and petals free; lip obtusely spurred from the middle of the lower surface; column short, broad, with a short but distinct foot; pollinia four, soft, sectile, with a common viscidium.

TYPE: *Yoania* Maxim.

Distribution Japan, China and northern India.

Yoania, the only genus of this new subtribe, was formerly placed in Calypsoinae, a subtribe with most members characterized by having tuber-shaped underground pseudobulbs, a longer column lacking a foot, and rather hard and waxy pollinia usually with a distinct stipe. In *Yoania*, however, the pollinia are soft, sectile and without a stipe and the column has a short but distinct foot. There is no clear relationship between *Yoania* and the other members of the subtribe Calypsoinae.

2 Subtribe Sterosandrinae S. C. Chen, Z. H. Tsi et G. Zhu, subtrib. nov. (Subfam. Orchidoideae, Trib. Epidendreae, sensu lato)

Herba saprophytica; tubera fusiformes, carnosa; caulis erectus, carnosus; inflorescentia terminalis, multiflora; flores resupinati; sepala et petala libera; labellum sine calcar; columna erecta, cylindrica, brevis, stigmatum terminali; stamen dorso columnae supra basin insertum, filamento elongato suberecto; pollinia duo, mollia, sectilia, caudicula una communi, "viscidio" parvo.

Herb saprophytic; tubers spindle-shaped, fleshy; stem erect, fleshy; inflorescence terminal, many-flowered; flowers resupinate; sepals and petals free; lip without spur; column erect, cylindric, short, with a terminal stigma; stamen inserted to the back of column above the base, with a elongate, suberect filament; pollinia two, soft, sectile, with a common caudicle and a small "viscidium".

TYPE: *Sterosandra* Bl.

Distribution From Thailand to the Philippines, New Guinea and the Solomon Islands, with northern limit in southern Yunnan and Taiwan of China.

Recently the subtribe Epipogiinae was treated as consisting of three genera: *Epipogium*, *Sterosandra* and *Silvorchis* (Dressler, 1993). Among them the genus *Silvorchis* was transferred from the tribe Orchideae to this subtribe first by Garay (1986) and then followed by Dressler (1993). Its taxonomic position is to be problematic. *Sterosandra* is somewhat similar to *Epipogium*, but their flower structures are quite different. In *Epipogium* the lip is spurred, the stamen is terminal and lacks a subterete filament, the stigma is located near the front base of the column, and the pollinia have two slender caudicles and a distinct viscidium. Of special interest is that in *Sterosandra* there is a mass of sticky substance at the end of the caudicle, which was considered by both Vermeulen (1965) and Rasmussen (1982) as "viscidium" derived from the anther. This is a feature found in no other orchid. Dressler (1993) stated that "*Sterosandra* would be a close relative of *Epipogium roseum* with a few mutations that could easily be viable only in a self-pollinating population". However, there is no evidence of such mutations. The differences between *Sterosandra* and *Epipogium* are so remarkable that it is reasonable to separate them from each other at the subtribal rank.

3 Subtribe Risleyinae S. C. Chen, Z. H. Tsi et G. Zhu, subtrib. nov. (Subfam. Orchidoideae, Trib. Epidendreae, sensu lato)

Herba saprophytica, parva; rhizoma aliquantum gracile, subrectum; caulis erectus, gracilis; inflorescentia terminalis, dense multiflora; flores carnosii, minuti, resupinati; sepala et petala libera; labellum integrum, sine calcar; columna teres, sine pedem; rostellum magnum; pollinia quatuor, ceracea, viscidio communi.

Herb saprophytic, small; rhizome rather slender, nearly upright; stem erect, slender; inflorescence terminal, densely many-flowered; flowers fleshy, tiny, resupinate; sepals and petals free; lip entire, without a spur; column terete, without a foot; rostellum large; pollinia four, waxy, with a common viscidium.

TYPE: *Risleya* King et Pantl.

Distribution Sikkim and southwestern China.

This subtribe includes a single species, *Risleya atropurpurea* King et Pantl., which was formerly placed in the subtribe Liparidinae. It differs from *Liparis* and its allied genera by having saprophytic habit, a nearly upright and rather slender rhizome, a straight and wingless column with a large rostellum, and a common viscidium which is rather large and thick compared with the pollinia. It is of our opinion that there is no direct relationship between the new subtribe and the subtribe Liparidinae.

4 Subtribe Acanthephippiinae S. C. Chen, Z. H. Tsi et G. Zhu, subtrib. nov. (Subfam. Orchidoideae, Trib. Epidendreae, sensu lato)

Herba terrestris; pseudobulbi approximati, 1- vel 3-nodi, foliis uno ad quatuor praediti; folia convoluta, articulata; inflorescentia lateralis, pauciflora; flores resupinati; sepala in tubum coalita; ea lateralia basi latissima, pede columnae inserta et in mentum calcariformem formantia; petala pede columnae partim inserta; labellum mobile; columna longa, pede longissimo, curvo sursum; pollinia octo, ceracea, sine viscidium distinctum.

Herb terrestrial; pseudobulbs closely spaced, 1- to 3-noded, with one to four leaves; leaves convolute, articulate; inflorescence lateral, few-flowered; flowers resupinate; sepals connate to form a tube; lateral sepals inserted to column-foot forming a mentum; petals partly inserted to column-foot; lip mobile; column long, with a very long foot much upcurved; pollinia eight, without a distinct viscidium.

TYPE: *Acanthephippium* Bl.

Distribution From Southeast Asia to New Guinea, northwards to southern China and the Ryukyu Islands.

Acanthephippium was formerly placed in the subtribe Bletiinae (Dressler, 1993). It is characterized by some very peculiar features. Its sepals are connate into a urceolate tube with lateral sepals decurrent on the column-foot forming a mentum with it; petals shortly decurrent along column-foot; lip very mobile; column long, with a very long and much upcurved foot. These features necessitate the separation of *Acanthephippium* from the subtribe Bletiinae.

5 Subtribe Anthogoniinae S. C. Chen, Z. H. Tsi et G. Zhu, subtrib. nov. (Subfam. Orchidoideae, Trib. Epidendreae, sensu lato)

Herba terrestris; pseudobulbi cornoidei, subterranei, saepe bifolii ad apicem; folia plicata, longe petiolata, inarticulata; inflorescentia terminalis, sparsim pauci- vel multi-flora; flores non resupinati; sepala in tubum infra medium coalita, ad angulum 90 versus ovarium patentia, supra medium libera; columna longa, sine pedem; pollinia quatuor, ceracea.

Herb terrestrial; pseudobulbs corm-like, underground, usually 2-leaved at apex; leaves plicate, long-petioled, nonarticulate; inflorescence terminal, laxly few- or many-flowered; flowers non resupinate; sepals connate in basal half into a tube, spreading at a right angle to ovary, with upper part free; column long, without a foot; pollinia four, waxy.

TYPE: *Anthegonium* Wall. ex Lindl.

Distribution From tropical Himalayas to southern China and Vietnam.

This new subtribe includes a single genus, *Anthegonium*, which differs from the members of the subtribe Bletiinae by its unique floral features: ovary being at right angle to perianth, sepals connate into a narrow tube with free tip and a gibbous base projecting behind the column, and pollinia four, rather than eight. Bletiinae appears to be a polymorphic subtribe. Although we have separated two new subtribes from it, there seem to be still a few subtribes in need of separation.

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摘要 本文对兰科中 9 个亚族的分类问题进行了探讨,并发表了 5 个新亚族:宽距兰亚族 Subtrib. Yoaniinae,肉药兰亚族 Subtrib. Sterosandrinae,紫茎兰亚族 Subtrib. Risleyinae,坛花兰亚族 Subtrib. Acanthephippiinae 和筒瓣兰亚族 Subtrib. Anthegoniinae.

关键词 兰科;宽距兰亚族;肉药兰亚族;紫茎兰亚族;坛花兰亚族;筒瓣兰亚族